AUTOTRANSFUSION

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THE idea of introducing into the patient's veins the fluid blood poured into the serous cavities as a result of trauma, or ruptured ectopic gestations, was first suggested in 1914 by J. Theis[1] a German. Quite an extensive literature has developed in Germany since the publication of the original article, but very little has appeared in British or American periodicals on the subject.

It has been a common observation in such cases as ruptured ectopics, that there is a large quantity of fluid blood mixed with the dark coloured clots, and that this fluid blood, probably due to its admixture with peritoneal exudate, does not clot readily. The idea of Theis is, to filter this blood of its clots and re-introduce it into the veins of the patient during the course of the operation. He did this in his first few operations by mixing the effused blood with sodium citrate in the ordinary way; later, by mixing it with saline solution, and finally used the whole blood without any vehicle. He concluded that it made no material difference which method was used. Under modern conditions nearly all large hospitals have a staff of properly tested blood donors who are at once available for transfusion purposes in cases requiring such treatment. Many cases of ruptured ectopic or other severe haemorrhage require blood transfusion during the course of operation. This invariably means a considerable delay while a donor with a suitable blood grouping is found, and also considerable expense. The patient already has a large amount of her own blood available in her abdomen; there can be no question of unsuitable blood grouping; there need be no delay and no expense, and it always has seemed a mistake to waste such valuable fluid in a patient who requires it so urgently.

The writer has used the method of autotransfusion in nine cases of ruptured ectopic pregnancy, employing a very simple technique. An assistant, usually a house surgeon, opens a vein in the arm and inserts a canula while the abdomen is being opened. He then commences a flow of normal saline solution. When the abdomen has been opened the fluid blood is sucked out, or ladled out with an ordinary cup or dipper. This blood is then filtered through about eight thicknesses of gauze moistened with physiological salt solution and allowed to run into a beaker containing about 200 cc. of salt solution. When all the blood has been collected it is poured into the jar from which the saline is already running into the vein through the canula. The house surgeon looks after that part of it, and the operation proceeds. As a rule, by the time the abdomen has been closed the assistant has closed, or is closing the vein.

Of the nine cases upon whom the writer has used this method all recovered. Just how much credit should be apportioned to the transfusion, I do not know. The amount of fluid re-introduced varied from 160 cc. in case four, to 420 cc. in case eight (see Table). In addition there was about 200 cc. of normal saline used as a vehicle. There is nothing particularly striking in any of the histories of these cases, they were all straightforward cases of ruptured ectopic of average severity, consequently detailed histories are not included; a small table being substituted.

Although autotransfusion will undoubtedly find its greatest field of usefulness in ruptured ectopic pregnancies, there is no reason why it should not be equally applicable in many other conditions with extensive haemorrhage into serous cavities, such as in cases of ruptured spleen, liver, uterus, or lung. Burch[2] reports a case in which he used the method for severe haemorrhage during the course of splenectomy for splenic anaemia, and quotes many cases from the German literature describing its use in a variety of ruptured viscera. Schaefer quoted by Burch[2] has made a very interesting sugges-

tion for using extravasated blood, which may possibly have become contaminated, as blood is liable to do which has remained within the abdomen for any considerable time. He collects the blood and uses it as a rectal drip, substituting it for the saline-glucose-brandy mixture so commonly used. I have not tried this method.

It would seem that autotransfusion is comparatively safe and possesses obvious advantages. Up to the present I have not heard of a fatality, nor have I observed any reaction following the introduction of the blood. Now that case reports are beginning to appear in English and American periodicals we may expect further information on this subject, and the safety of the procedure will be better appreciated.

TABLE

Case	*Age*	*Para*	*Duration Perforated*	*Amount Infused*	*Anaesthetic*
1	22	1	4 hours	210 cc.	Gas. Oxy.
2	24	1	7 "	315 cc.	" "
3	31	3	9 "	380 cc.	" "
4	19	1	2 "	160 cc.	" "
5	36	4	2 "	210 cc.	" "
6	29	3	4 "	280 cc.	" "
7	33	3	6 "	400 cc.	" "
8	36	1	6 "	420 cc.	" "
9	20	2	3 "	240 cc.	" "

REFERENCES

(1) THEIS, J., Zur Behandlung der Extrauteringraviditaet. *Zentralbl. f. Gynaek.*, 1914, xxxviii, 1191. (2) BURCH, Autotransfusion, *Surgery, Gynaecology and Obstetrics*, June, 1923, 811-814.

A CASE OF HYPERNEPHROMA ASSOCIATED WITH THYROID HYPERACTIVITY

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FOR the last quarter of a century perhaps no branch of medical advancement has been so meteoric as that of endocrinology. That the glands of internal secretion are very intimately associated the one with the other we are quite certain, but to what point the one depends on the other has been a matter of much conjecture, theorizing and experimentation. The following case studied by us at the Royal Victoria Hospital, presents a clinical picture, which in several features bears out the experimental observations which lead us to believe there exists a definite, intimate, and perhaps absolute, interrelationship between the suprarenals and the thyroid. Before presenting the case it would, perhaps, be well to make a cursory review of the work directly applicable to the subject, which has been done up to the present time.

Brown Sequard, in 1851, showed that animals which survive a double suprarenalectomy for a week or more lose weight rapidly. This loss of weight was due to a rapid disappearance of fat. Porges and many others have shown that adrenalectomy causes a rapid disappearance of glycogen from the liver, and a progressive fall of blood sugar in dogs and rats. Their relation to alterations in the rate of metabolism did not, however, attract much attention.

Golyakowski, 1899, noted that in ligation of the suprarenal artery in dogs, in those which survived over six weeks, there was a rise in heat production and CO_2 output of 30%, in the first ten days, followed by a drop nearly to normal, then a second rise as high as 50% between the second and fourth weeks, falling to, or even below, normal on the sixth or seventh week. Heat production and heat loss were parallel, from which he concluded the heat regulating mechanism was intact. No experimental data was furnished.

Aub found a slight rise in metabolic rate for some hours after operation, and eighteen hours after, a fall 25% below normal. Marine and Baumann, 1921, showed that removing or crippling the suprarenal glands in rabbits, caused an increased heat production and CO_2 output. This disturbance was definitely related to the completeness of removal of the cortical function.

The symptom complex resulting from des-